National Institute of Environmental Health Sciences

Climate change could threaten blood supply by altering the distribution of vector-borne disease: An Australian case-study

Author(s): Bambrick HJ, Woodruff RE, Hanigan IC
Year: 2009
Journal: Global Health Action. 2

Abstract:

BACKGROUND: Climate change is expected to promote more intense and prolonged outbreaks of vector-borne disease, and alter the geographic boundaries of transmission. This has implications for the safety and supply of fresh blood products around the world. In Australia, a recent outbreak of dengue fever caused a prolonged regional shortage in the supply of fresh blood products. OBJECTIVE: To highlight the potential for climate change to affect the safety and supply of blood globally through its impact on vector-borne disease, using the example of dengue in Australia as a case-study. DESIGN: We modelled geographic regions in Australia suitable for dengue transmission over the coming century under four climate change scenarios, estimated changes to the population at risk and effect on blood supply. RESULTS: Geographic regions with climates that are favourable to dengue transmission could expand to include large population centres in a number of currently dengue-free regions in Australia and reduce blood supply across several states. CONCLUSION: Unless there is strong intergovernmental action on greenhouse gas reduction, there could be an eight-fold increase in the number of people living in dengue prone regions in Australia by the end of the century. Similar impacts will be experienced elsewhere and for other vector-borne diseases, with regions currently on the margins of transmission zones most affected. Globally, climate change is likely to compound existing problems of blood safety and supply in already endemic areas and cause future shortages in fresh blood products through its impact on transmission of vector-borne disease.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2802100

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Other Climate Scenario

Other Climate Scenario: CSIRO scenarios 1-4

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Meteorological Factors, Temperature

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Dengue

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Cost/Economic, Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

Climate Change and Human Health Literature Portal

A focus of content